

HP Performance Optimized Datacenter 240e North America (Adiabatic) Site Preparation and Requirements Guide

Abstract

This guide is intended for the person who operates and maintains the HP Performance Optimized Datacenter 240e NA (HP POD 240e NA).



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Contents

Overview	5
About this document	5
Safety and NEC compliance	5
Site assessment	6
Site preparation	6
Site safety and security	6
Fire detection	6
Capacities	6
Site requirements	7
Site pad	7
Weight requirements	7
Dimensions and required clearances	7
Future expansions	9
Racks	9
Cold aisle clearance	10
Grounding requirements	10
Utilities	12
System utilities	12
Power	13
Supported facility connections	16
Environmental control system	16
Connections to central facility infrastructure	16
Connection portals	16
Demarcation box	18
Fire box	18
Access control	19
Fire, safety, and access notifications	19
Environmental considerations	21
Environmental risks	21
Cold weather	21
Areas prone to lightning or power surges	21
Seismic activity	21
Site plan requirements and actions	22
Completing a site assessment	22
HP Site Preparation Drawing Package	22
Zoning and permit requirements	22
Project coordination	22
Site planning	23
Installation	23
Appendix A: HP site assessment	25
HP POD 240e NA site assessment checklist	25
Appendix B: Preparing for delivery	28
Pre-delivery tasks	28

Installation prerequisites	28
HP POD 240e NA site readiness checklist	28
Contacting HP	31
Before you contact HP	31
HP contact information	31
Regulatory compliance notices	32
HP POD 240e NA regulatory compliance	32
Safety and NEC compliance	32
Safety and regulatory compliance	33
Turkey RoHS material content declaration	33
Ukraine RoHS material content declaration	33
Warranty information	33
Glossary	34
Documentation feedback	37
Index	38

Overview

About this document

This document outlines the site preparation requirements for an HP Performance Optimized Datacenter 240e NA. You must provide a qualified architectural or consulting engineering team to generate site-specific documents for each HP POD 240e NA installation, including final site drawings. Your site installation design must comply with all local and national regulations, ordinances, codes, and the specifications listed in this document.

Safety and NEC compliance

The HP POD 240e NA is Listed to UL 69050 Part 1 and Part 22 as an Information Technology Product and Classified in accordance with the National Electric Code NFPA 70.

The HP POD 240e NA is not habitable or suitable for human occupancy. The HP POD 240e NA is Listed as a Product that provides Service Access Areas for periodic maintenance and service. Access to these areas must be controlled and available for use only by owner-authorized and qualified personnel who are trained in the maintenance and service of the HP POD 240e NA components. For more information, see "HP POD 240e NA regulatory compliance (on page 32)."



IMPORTANT: Before installing the HP POD 240e NA, consult your local AHJ for applicable regulations and to review site-specific location guidelines. If needed, obtain any necessary permits.

Additional considerations for safety and NEC compliance are as follows:

- The HP POD 240e NA is Listed as an Information Technology Equipment Product to UL 60950.
- The HP POD 240e NA is evaluated as a "non-inhabitable product" that provides "service access" areas for customer-authorized, qualified, and trained service personnel.
- The electrical connections of the HP POD 240e NA are evaluated as feeder connections for connection to an existing facility. The electrical connections are not suitable as "service entrance" for connection to the utility.
- The HP POD 240e NA is designed for stationary installation outdoors in a Pollution Degree 3 environment, in restricted access locations, and with field wiring terminals provided for permanent supply connections.
- The HP POD 240e NA meets the ratings in the following table.

Feature	Specification
Category	Rated Overvoltage Category III
Protection	Surge protection device
Class	Class I
Ambient temperature	2°C to 54°C (35.6°F to 129.2°F)
Relative humidity	0% to 100% humidity
Enclosure	NEMA 3R

- As part of the overall certification, relevant sections of the International Building Code have been applied as part of the design and evaluation. The current design supports wind loads up to 90 mph.

Site assessment

HP requires a detailed site assessment before planning and preparing your site location for the HP POD 240e NA. Consult with HP to schedule a site assessment.

Site preparation

Site preparation must be complete before the delivery of the POD for a timely installation and commissioning. The site must meet all pad and power requirements.

Site safety and security

Your site must have its own standard safety and security requirements. HP Program Managers will work with you to verify adherence to the appropriate precautions. HP is not responsible for determining or enforcing safety or security requirements. You must conduct all health and safety evaluations of the HP POD 240e NA. HP is available to help you be sure that you have successfully conducted these evaluations.

Fire detection

The fire detection system is supplied as a component of the HP POD 240e NA, and is Manufacturer Designed specifically for this HP product, in compliance with national standards.

HP does not certify that the fire detection system that is installed in the HP POD 240e NA meets all local and jurisdictional requirements. The customer is responsible for the following actions:

- Verifying that the POD fire detection system meets local codes, including specific local requirements for initial and periodic inspections
 - Arranging for and receiving all required local permits, including initial commissioning as well as standard and repair maintenance
 - General maintenance of the fire detection system must be completed by an authorized technician
- For more information, see the *HP Performance Optimized Datacenter 240e NA Maintenance and Service guide*.

Any additional local requirements are not covered as part of the installation and deployment services of the fire detection system, unless specifically included in an executed SOW.

Capacities

Each HP POD 240e NA is unique and the specific power and cooling capacities will vary for each POD that uses Adiabatic cooling. For specific capacity information, see your *HP Performance Optimized Datacenter 240e NA Customized Supplement*.

Site requirements

Site pad

The structural design of the HP POD 240e NA site pad must be based on the specific weight load of the complete POD solution with IT installed, as well as any additional equipment. During design calculations, HP recommends that you provide structural support at the identified load pad locations of the HP POD 240e NA to be sure that the POD remains level.

When preparing the site pad, be sure to adhere to the following requirements:

- POD load pads are in the proper location.
- Upon installation, the POD structure must be leveled to $\leq 0.5^\circ$, which can be checked at that time with a surveyor's transit.
- Shimming is allowed at the load pads only. Place shims in increments across the load pads to be sure of a sufficient load transfer.



IMPORTANT: The HP POD 240e NA is designed for ground level installation. If you install the HP POD 240e NA on an elevated surface, verify that the minimum height requirements for circuit breaker actuators are considered per national, regional, local regulations, and electrical codes. The area in front of the outside panels must include a work platform.

Weight requirements



IMPORTANT: The provided weights are estimates of the minimum and maximum weights. The total weight of the HP POD 240e NA is based on the IT equipment and optional components that are purchased and installed on the POD and might vary.

The HP POD 240e NA must be installed on a surface that is capable of supporting the following weights:

- HP POD 240e NA with 12 AHUs—approximately 66,859 kg (147,400 lb)
- HP POD 240e NA with 12 AHUs and IT equipment installed—maximum 138,309 kg (304,920 lb)

Dimensions and required clearances

The selected site for the HP POD 240e NA must be large enough to install, service, maintain, and potentially upgrade the unit and the payload.

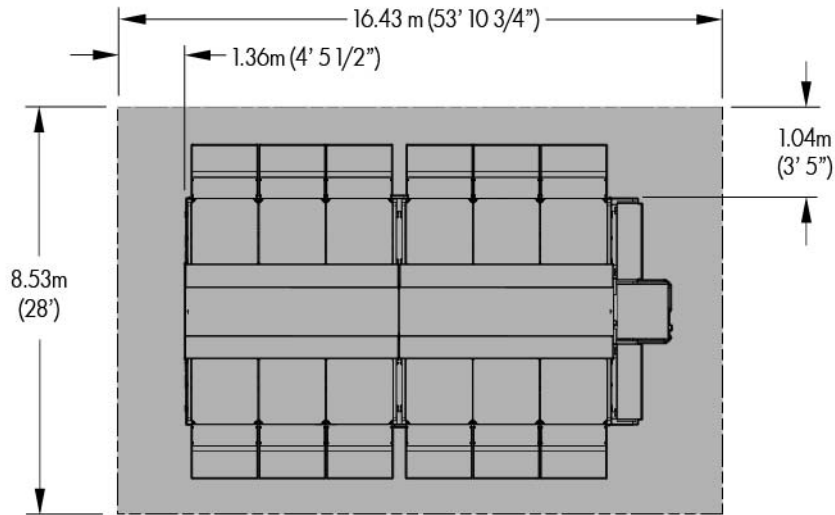
The following two examples show site clearance considerations:

- If the HP POD 240e NA is to be installed in a warehouse, be sure that the warehouse doors are large enough to accommodate each section of the HP POD 240e NA.
- If the HP POD 240e NA is to be installed outdoors, be sure that adequate clearance exists for all buildings, utility lines, or other site structures such as gates and headers.

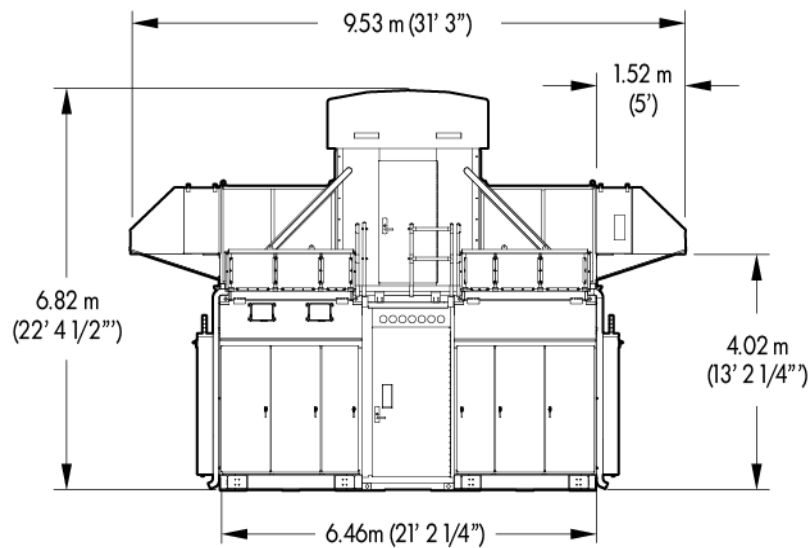
Every site must have sufficient clearance for assembly, maintenance, and service, including such handling devices as a forklift, scissor lift, boom lift, or crane. Be sure to provide adequate space around the HP POD 240e NA for airflow and cooling purposes.

IMPORTANT: Shaded areas indicate required clearances.

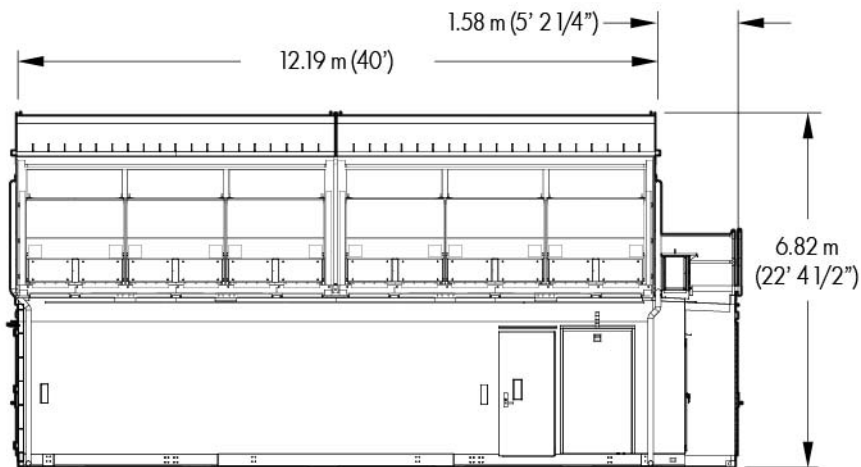
Top view clearances shown



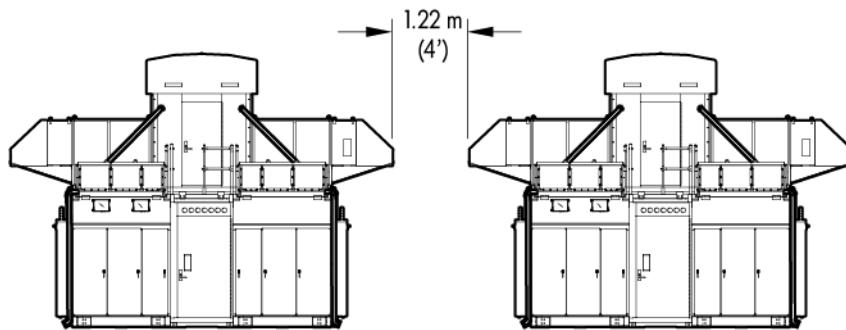
End view clearances shown



Side view clearances shown



End view clearances shown



For additional dimensions, see the *HP Site Preparation Drawing Package* (on page [22](#)).

Future expansions

When selecting a site location, consider future space and accessibility requirements. Adequate space around the HP POD 240e NA is necessary for airflow and cooling purposes. Keep the specified areas clear.

For specific space requirements, see the HP POD 240e NA dimensions and required clearances.

Racks

The standard HP installed rack is a 50U rack. The HP POD 240e NA has 22 IT racks per IT section, for a total of 44 IT racks.

During maintenance, if you remove filler panels for maintenance purposes, you must replace them. Cold-aisle to hot-aisle separation must be maintained.

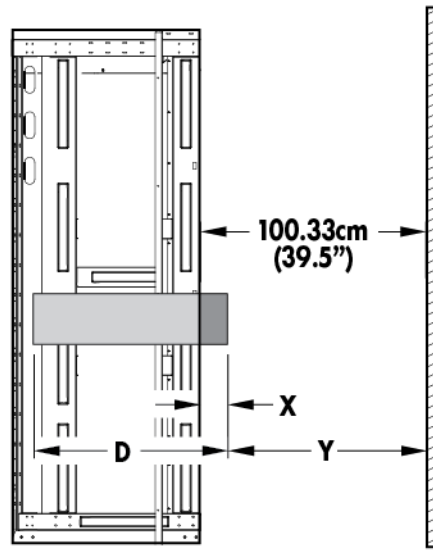


CAUTION: If any racks contain empty RU space, use the HP POD 240e NA filler panels to maintain the efficiency of the HP POD 240e NA thermal system. Filler panels are available from HP in 10-pack quantities (part number AQ682A) and 100-pack quantities (part number AS993A).

For more information about racks and network cabling, see the *HP Performance Optimized Datacenter Networking Guide*.

Cold aisle clearance

The maximum protrusion of any installed IT component directly impacts the available cold aisle clearance for removal and replacement of other IT components. Maximum component depth must follow the clear aisle distance calculations. The following figure shows how to calculate this distance.



The maximum rack face-to-cold aisle wall distance is 39.5 inches. In the figure, **X** represents any protrusion into the cold aisle starting from the rack face of the installed IT component (for example, the bezel). **Y** represents cold aisle clearance. The cold aisle clearance dictates the maximum depth (**D**) of any installed IT component. To find the maximum cold aisle clearance, calculate **100.33 cm (39.5 in) - X = Y**.



IMPORTANT: As the value for **X** increases, the value for **Y** decreases, which also decreases the maximum depth allowed for an installed component.

Grounding requirements

The HP POD 240e NA structure and internal components are all bonded together. A common grounding electrode conductor connection point is provided on the utility end of the IT sections.



WARNING: To avoid the risk of personal injury or electric shock, the HP POD 240e NA must be properly grounded (earthed) in accordance with national, regional, and local regulations.



CAUTION: Remove paint from all grounding surfaces. Failure to do so results in an ineffective ground.

The following is a list of component requirements for grounding and bonding:

- Grounding of the HP POD 240e NA must comply with the requirements of Article 250 of the NEC, NFPA 70-2011 (NA/JPN), and with local and regional regulations (IEC for EMEA and APJ).
- Bonding of the piping systems and any exposed structural steel, installed to support the HP POD 240e NA, must be in accordance with NEC (NA) and with local and regional regulations (IEC for EMEA and APJ).

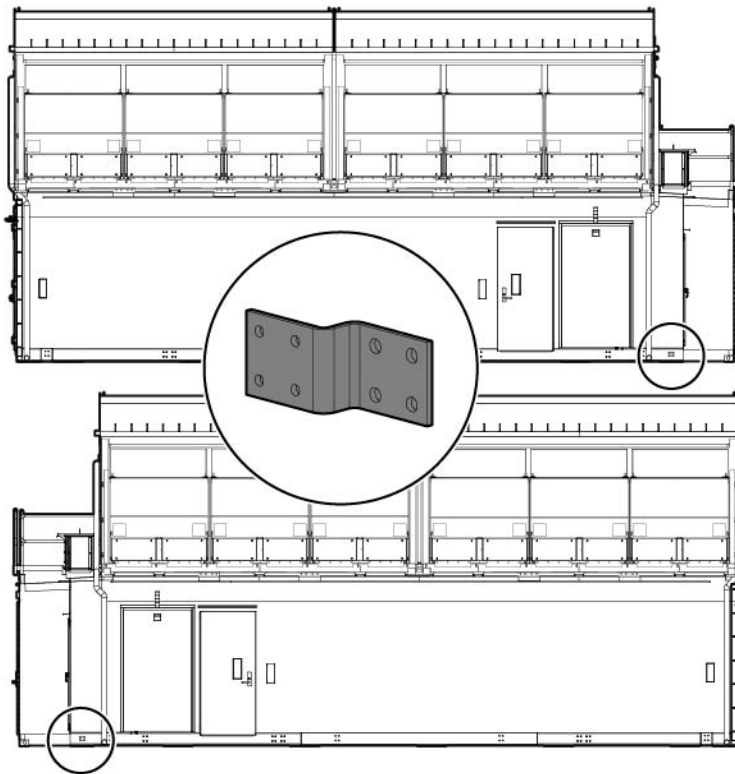
Grounding feature	Specification
Grounding electrode conductor pad	<ul style="list-style-type: none"> • The grounding electrode conductor connection bus pad is located on the outside of the HP POD 240e NA on the cold aisle adjacent to the power cabinet. • The grounding pad must be connected to the grounding electrode system or building steel in accordance with Article 250 of the NEC or equivalent regional regulations.
Grounding lugs	<ul style="list-style-type: none"> • Grounding lugs cannot be attached to any painted surface. • Grounding lugs must be compression-type 2-hole lugs and UL listed specifically for grounding.
Ground rod system or ground well	You must provide an effective grounding system with a ground rod or a ground well.



IMPORTANT: Before installing the HP POD 240e NA, consult your local AHJ for applicable regulations and to review site-specific location guidelines. If needed, obtain any necessary permits.

The grounding electrode conductor connections are located on IT sections A and B of the HP POD 240e NA. The following figure shows the location for both of the IT sections.

Side view shown



Utilities

Consider the proximity to required utilities, such as power, water, and network connections. While the required utilities can be brought to nearly any selected site, there is the potential for increased costs and decreased efficiency when the HP POD 240e NA is located farther from the utility sources.

For utility clearance information, see "Dimensions and required clearances (on page 7)."

System utilities

The site location must accommodate the following utilities:

- Water supply (on page 12)
- Drain locations (on page 13)
- Power (on page 13)

Water supply

An external source of water must be provided for saturating the evaporative media. When the HP POD 240e NA begins operation, the supplied water is used in conjunction with the evaporative media to provide the specified cooling.

The supply water must meet the following requirements.

Requirement	Specification
Pressure	20-70 psi (138-483 kPa)
Temperature	Between 1 °C and 30 °C
Instant flow-rate	No lower than the rated flow of the fill solenoid valve (1.5 gpm maximum flow per Adiabatic unit, maximum instantaneous).
Connection	¾"
Hardness	No greater than 40°FH (equal to 400 ppm of CaCO ₃)
Conductivity	100 to 1250 µS/cm
Organic compounds	None
Type of water	Demineralized is preferred. Drinking potable water is acceptable and most likely.

IMPORTANT: To connect the cooling system, a 0.0127 meter (½ inch) OD copper adapter is needed for water piping.

IMPORTANT: If your water is out of range of these requirements, consult a water quality expert.

In addition to the previous requirements, follow these guidelines:

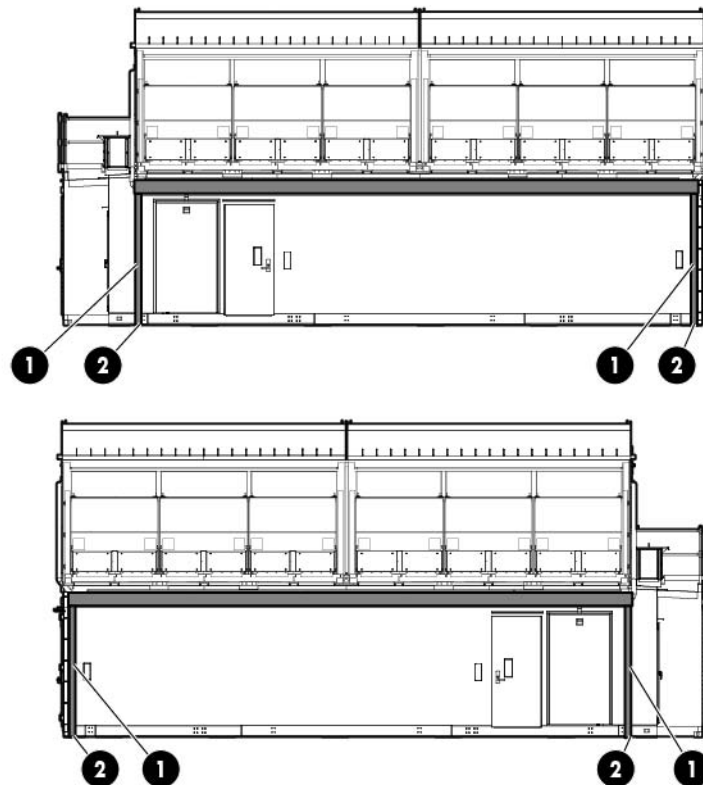
- Do not treat the water with softeners. Softeners might produce foam, which affects the operation of the unit.

- Do not use well water, industrial water, water from cooling circuits, or water contaminated by any chemicals or bacteria.
- Do not add disinfectants or anticorrosive compounds to the water, which are potential irritants.
- HP highly recommends installing a filter to be sure that water is free of particles.

Drain locations

The following figure shows the drain locations on the HP POD 240e NA.

Side view shown



Callout	Component	Description	Quantity per side	Total quantity per HP POD 240e NA
1	Adiabatic media drain	Removes excess water from the adiabatic media drip tray	2	4
2	Rain water drain	Removes rain water from the HP POD 240e NA	2	4



IMPORTANT: Consult with your AHJ to determine the appropriate drainage system routing.

Power



IMPORTANT: To provide power to the HP POD 240e NA, external transformers and switchboards might be required. This equipment must be designed and installed to adhere with local, state, and national codes, and installed by contractors with licensing required by the local jurisdiction; city, township, and state.

For all site preparation drawings, see the *HP Site Preparation Drawing Package* (on page 22).

Site electrical system

To be sure that there is a complete and safe integration of the HP POD solution within your facility, HP requires that you complete the following actions for the installed electrical system before the installation of the HP POD solution:

- Short circuit analysis
- Arc flash study
- Circuit breaker coordination study

These actions must be performed for all associated parts of the electrical power train. The majority of the details and factors required to complete these studies are associated with the existing installed facility infrastructure.



CAUTION: Failure to complete these studies can cause serious issues with the electrical integration of the POD into your electrical system.

Electrical power system configuration

A preliminary meeting with the HP POD Electrical Engineering team is necessary to discuss your decision concerning capacity limitations and the impacts of this decision on the electrical design.

When determining the final location of the power connections, consider the following:

- Distance between the facility utilities and the location of the HP POD 240e NA
- Distance between possible UPS or generator locations and the HP POD 240e NA
- Requirements for routing electrical feeders (underground or overhead)

The facility power connection must be installed in compliance with local electrical codes and regulations. The HP reference electrical installation design is based on a maximum distance of 15.2 m (50 ft) or a line of sight between the disconnect and the HP POD 240e NA. You are required to discuss your decision concerning capacity limitations, and the impacts of this decision, on the electrical design with the POD Electrical Engineering Team.

A 1N electrical configuration can be achieved by providing all of the required electrical feeders from a common power source, common switchboards, and transformers.

A 2N electrical configuration can be achieved by feeding parallel power paths from independent power sources, switchboards, and transformers.



IMPORTANT: All 3-phase wye feeders for the HP POD 240e NA require that the neutrals and the equipment grounding conductors remain isolated. Bonding of the two conductors is allowed at the power source only.

Transformers and switchboards

The input power for the Critical IT Loads requires a source of 380-415V, 3phase wye power. If it does not already exist at the source, you might have to obtain custom transformers to derive this power. In addition to the overall loading and KVA size, you must consider the Harmonic Content of the installation when specifying the K-Factor of the transformers. Alternatively, you can use Harmonic Mitigating Transformers to passively cancel the harmonics generated by the IT equipment.

HP offers several power solutions that include automatic transfer switching, UPS backup, transformers and output distribution switchboards to supply your power needs.

On-site connections might include:

- Main facility power to the primary side of the transformer
- Transformer to the switchboard
- Switchboard assembly to the HP POD 240e NA

For connection information, see the *HP Site Preparation Drawing Package* (on page [22](#)).

Supported facility connections

Environmental control system

The ECS developed for the HP EcoPOD is a stand-alone control system that requires no external connections with an external site system, BMS, public or private Internet sites, cloud, or wireless system to properly control the POD operation.

The ECS includes Modbus TCP/IP connections through which a variety of data can be retrieved. These capabilities enable you to connect, at your expense, with the stand-alone ECS system to monitor the operating parameters of the POD. It is your responsibility (or your representative's or agent's responsibility) to integrate this communication capability into any existing BMS or monitoring system.



CAUTION: To be sure that alarm conditions can be identified and resolved, HP recommends that you remotely monitor all alarm conditions. Failure to monitor the alarm conditions can cause delays in appropriate action during an alarm condition.

Connections to central facility infrastructure

The HP POD 240e NA is designed to function as a standalone unit and provides various connection points to your facility. It is your responsibility to facilitate these connections. HP can make these connections when specifically contracted to deliver these services and a SOW has been drafted, reviewed, and signed for delivery services. Available POD connections include the following:

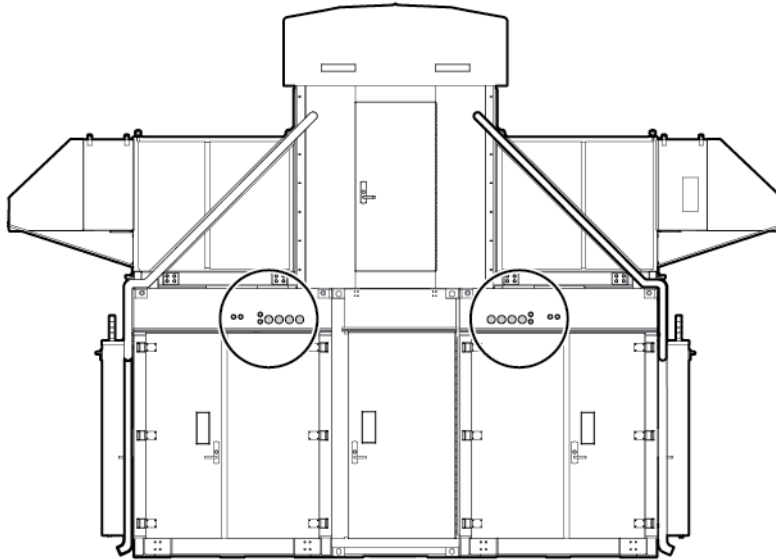
- HP POD 240e NA Environmental Control System
 - Operational status
 - Power consumption
 - Environmental status
- Life safety systems
 - EPO
 - Fire detection
- Site communication
 - Phone
 - Access control
- Networking—IT connections

Connection portals

The networking and connection portals are located on both ends of the HP POD 240e NA.

Each IT section has eight portals located on the cargo-end of the POD, and each of the differently sized portals are used for different connections.

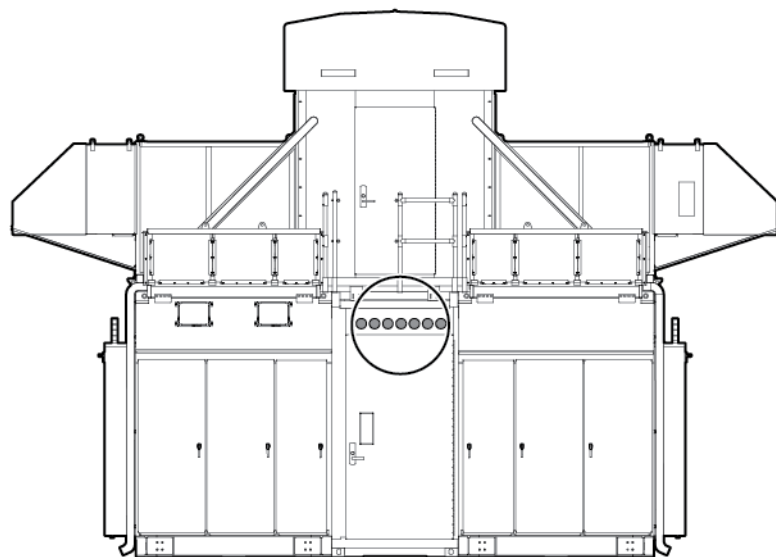
End view shown



Connection portal diameter	Connection point	Quantity per IT section	Total quantity per HP POD 240e NA
7.62 cm (3 inch)	Networking connection for all IT	4	8
3.81 cm (1.5 inch)	Communication connection for: <ul style="list-style-type: none"> • ECS • EPO • Fire alarm • Phone 	2	4
3.81 cm (1.5 inch)	(Optional) vestibule communication connections	2	4

On the front-end of the POD, there are seven 7.62 cm (3 inch) portals that you can use for data connections.

End view shown



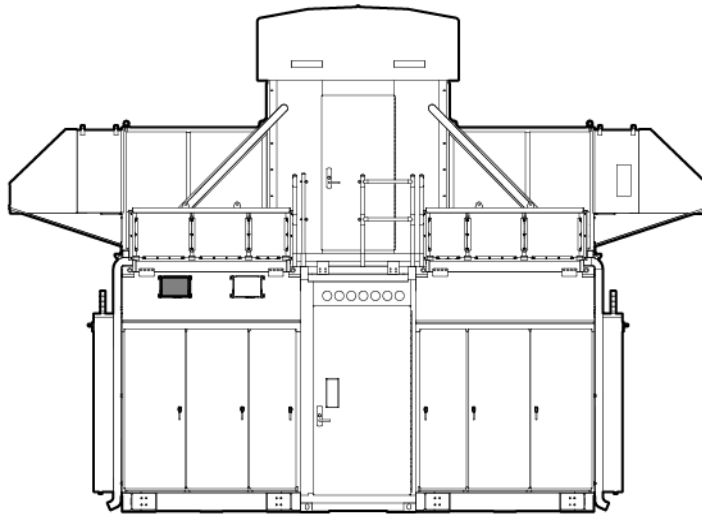
IMPORTANT: The connection portal location and configuration might look different, depending on the HP POD 240e NA model.

Demarcation box

The following communication connections between your facility and the HP POD 240e NA are made through the demarcation box:

- ECS communication
- Access control communication
- Phone

End view shown

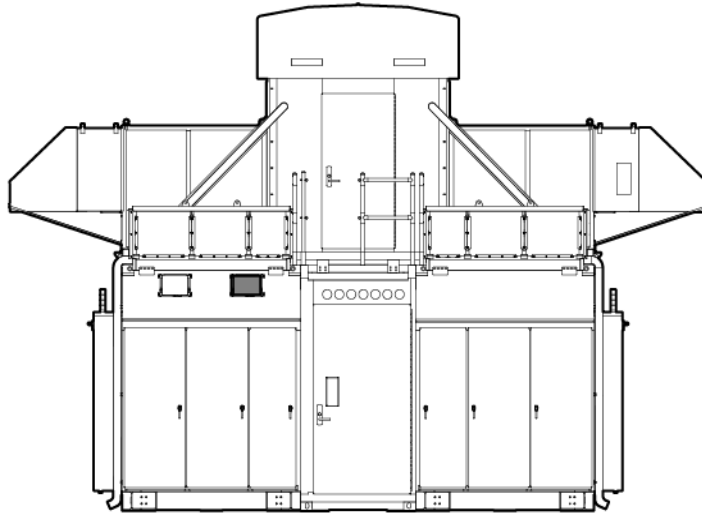


You must make the connections between the facility and the HP POD 240e NA. For configuration and installation instructions, consult with HP.

Fire box

The communication connections between the site fire system and the HP POD 240e NA are made through the fire box.

Front view shown



You must make the connections between the facility and the HP POD 240e NA. For configuration and installation instructions, consult with HP.

Access control

The HP POD 240e NA is equipped with standard key lock hardware for each personnel entry door and external electrical cabinet. Each personnel entry door includes a door access contact that can be connected to your facility access control system.

Additional options for controlled access include the following:

- Electronic card reader
- 12-digit access control code keypad
- Magnetic lock on each personnel access door and dynamic hot aisle door

Fire, safety, and access notifications

Dry contacts are provided to allow the connection between the HP POD 240e NA and your facility. If the HP POD 240e NA is connected to your facility systems, then the alarm conditions of the HP POD 240e NA can be detected by the facility systems.

It is your responsibility to facilitate these connections. HP can make these connections when specifically contracted to deliver these services and a SOW has been drafted, reviewed, and signed for delivery services.

You must provide an independent connection for each system listed in the following table.

Alarm	Description
Fire prevention alarm	Smoke is detected in the HP POD 240e NA.
Access control	A door of the POD has been opened.
EPO	The EPO system is activated by manually pressing the EPO button or by a thermal event, and the HP POD 240e NA is shut down.

The electrical layout of the fire alarm system is described in the schematic drawing that is supplied with the *HP Performance Optimized Datacenter 240e NA Site Drawing Package*.

Environmental considerations

Environmental risks

- Avoid placing the HP POD 240e NA directly along a drainage path or in an area prone to flooding.
- Verify that the HP POD 240e NA is properly grounded in accordance with NFPA 70 and local and regional regulations (IEC for EMEA and APJ).

Cold weather

The HP POD 240e NA requires a water supply and several water drains. Extreme cold weather might cause damage to the supply and drain lines. Evaluate the following for additional cold weather protection:

- Regional location of HP POD 240e NA
- Exposure of supply and drain lines to extreme cold temperature

Extreme cold weather can affect crane and lifting operations. When temperatures drop below -12.22°C (10°F), appropriate consideration must be made with respect to shock loading, crane hydraulics, and possible derating of the crane.

Areas prone to lightning or power surges

The HP POD 240e NA structure and internal components are all bonded together. A common grounding electrode conductor connection point is provided. Proper bonding and grounding of the HP POD 240e NA minimizes the effects of a lightning strike. A surge protection device is provided on the HP POD 240e NA input connection to protect the HP POD 240e NA electrical system from voltage transients. If your site is in an area that is subject to frequent lightning strikes, the HP POD 240e NA must be protected in accordance with NFPA 70 (NA) and IEC (EMEA and APJ). HP recommends that you contact a certified lightning protection consultant.

Seismic activity

If your site is in an area that has frequent seismic activity, HP recommends that you contact a seismic activity consultant. If your site is in an area that has a high vibration level, HP recommends that you contact a vibration isolation consultant. You must specify the method of anchoring the HP POD 240e NA, if necessary.

Site plan requirements and actions

Completing a site assessment

HP requires a detailed assessment before planning and preparing your site location for the HP POD 240e NA. Consult with HP to schedule a site assessment.

A standard site assessment visit includes the following tasks:

- Selecting an appropriate site for the HP POD 240e NA
- Assessing the proposed site for:
 - Measurements for clearances
 - Infrastructure for the final solution
 - Access to utilities
 - Site pad
 - Installation considerations, including locations for delivery trucks, large installation equipment (such as cranes), and storage
 - Electrical infrastructure
 - Facility network and access control systems
- Developing an engagement plan and verifying your contacts
- Discussing future development and growth plans

For a complete site assessment checklist, see "Appendix A: HP site assessment (on page [25](#))."

HP Site Preparation Drawing Package

After receiving a signed purchase agreement, HP provides detailed engineering drawings. These drawings contain information to assist you and your MEP team to prepare the site for POD installation. If there are areas of special interest, HP can work directly with your MEP team to provide additional assistance.

Zoning and permit requirements

You are responsible for compliance of the overall installation in accordance with all local and national regulations, ordinances, codes, and the product specifications.

Project coordination

Your Project Manager must perform the following tasks:

- Coordinate with all trades before installation to be sure that trade conflicts are resolved.
- Coordinate the installation and integration of all systems.
- Be sure that the site safety and security programs are properly administered.

- Interface directly with the HP installation project manager to be sure clear lines of communication exist during the installation and commissioning processes.

Site planning

A comprehensive site plan assists with the site design (MEP) and helps you to be sure that you use the best possible HP POD 240e NA installation process. When creating a site plan, consider the following information:

- HP POD 240e NA site requirements detailed in this document ("[Site requirements](#)" on page 7)
- HP POD 240e NA site preparation drawing package ("[HP Site Preparation Drawing Package](#)" on page 22)
- HP POD 240e NA readiness checklist ("[HP POD 240e NA site readiness checklist](#)" on page 28)
- HP POD 240e NA installation ("[Installation equipment staging](#)" on page 23)

The HP team can assist you by answering questions and by helping to guide you throughout the process.

Installation

HP POD 240e NA installation includes the following:

- Installation equipment staging (on page 23)
- Locations for the HP POD 240e NA and equipment (on page 23)
- HP POD 240e NA lifting requirements ("[Lifting requirements](#)" on page 24)
- HP POD 240e NA storage requirements ("[Storage requirements](#)" on page 24)
- Other structures (on page 24)

Installation equipment staging

Staging for the following items must be identified and considered:

- Truck and component staging
- Installation equipment staging
- Site traffic
- Regulatory or local permits

Locations for the HP POD 240e NA and equipment

When preparing a site plan, identify where the HP POD 240e NA, and equipment used to assemble it, are going to be placed. Discuss and plan the following items as applicable to the installation:

- HP POD 240e NA location and order of assembly
- Generator and UPS units
- POD-related switchgear
- Housekeeping pads for required electrical equipment
- Crane capacity, location, and reach

- General assembly equipment locations

Lifting requirements



WARNING: The only approved method for lifting any section of the HP POD 240e NA is the use of a spreader bar or harness. Lifting any section of the HP POD 240e NA in any other way can cause damage to the HP POD 240e NA and void your warranty. The harness and lifting connections must be perpendicular to the lifting blocks or connections.

Storage requirements

If the site is not ready for assembly and operation, determine a location for storage when creating the site plan.



CAUTION: The HP POD 240e NA must maintain 20% relative humidity to minimize condensation and oxidation within the HP POD 240e NA.



CAUTION: While being stored, the HP POD 240e NA must be kept in a level position even if stored on a trailer.

Changes in ambient temperatures can cause condensation in a non-operational HP POD 240e NA. If the HP POD 240e NA is placed in storage or is in non-operating mode for over 72 hours, HP recommends using one of the following methods to minimize condensation and oxidation within the HP POD 240e NA:

- Desiccant unit
- Desiccant material
- Heater with a fan
- Air conditioner with a heater strip

Consult with HP Services to determine the most effective method.

Other structures

If you provide a vestibule or other structure that will be installed at the HP POD 240e NA site, you must maintain the following specifications:

- Flashing must be installed on the exterior of the HP POD 240e NA in the location where the other structure will be attached to protect the HP POD 240e NA and be sure that there is a waterproof barrier.
- Access catwalks and landings might be required to maintain the required egress from the HP POD 240e NA HVAC service area.
- Access catwalks and landings might be required to maintain the required access to the HP POD 240e NA electrical panels.

Appendix A: HP site assessment

HP POD 240e NA site assessment checklist

During a survey of the readiness of a proposed customer site for the HP POD 240e NA, the site is inspected for the following:

- Accessibility of machinery for the transportation and installation of the HP POD 240e NA
- Assessment of the suitability of the site infrastructure for installing the HP POD 240e NA and for supporting infrastructure preparation and serviceability requirements

HP responsibilities

Item	Description	Yes	No	N/A	Initial
1. Engagement plan	Develop an engagement plan with specific requirements relating to the proposed installation site.				
2. Site visits	Schedule site visits on mutually acceptable dates, during normal HP business hours.				
3. Test equipment	Document any test equipment that is required for installation or commissioning.				
4. Installation site review	Review and discuss the proposed installation site: <ul style="list-style-type: none">• Physical examination of the proposed installation site.• At HP's discretion, include physical measurements of the area.				
5. Indoor/outdoor installation	Determine if the HP POD 240e NA installation is indoors or outdoors.				
6. Site pad	Inspect the proposed installation site to be sure that the customer is aware of the following requirements: <ul style="list-style-type: none">• POD load pads are in the proper location.• Upon installation, the POD structure must be leveled to $\leq 0.5^\circ$, which can be checked at that time with a surveyor's transit.• Shimming is allowed at the load pads only.• Place shims in increments across the load pads to be sure that there is sufficient load transfer.				
7. Construction site inspection	Visually inspect the construction site and identify the location to install the crane.				
8. Staging	Be sure the following areas exist and are identified: <ul style="list-style-type: none">• Truck delivery• Staging• Waste removal				
9. Clearances	Inspect the proposed installation site to confirm the clearance requirements are met for installing and servicing the POD based on the HP POD 240e NA specifications. Consider future planning for the space around the installation site.				
10. Support infrastructure location	Evaluate the HP POD 240e NA installation site in relation to the existing and planned support infrastructure location.				

Item	Description	Yes	No	N/A	Initial
11. Support infrastructure for access requirements	Physically evaluate the delivery path that is required with the customer's site engineering personnel to identify any obstacles that might be encountered during the site visit.				
12. Site engineering review	Review and document the following items with the site engineering personnel: <ul style="list-style-type: none"> • Delivery • Staging • Installation • Utilities • Commissioning requirements 				
13. Capacity of electrical infrastructure	Review the electrical requirements of the HP POD 240e NA with the customer and the customer's site engineering personnel. HP is not responsible for customer site infrastructure unless it is stated in the SOW.				
14. Adiabatic media water	Determine pressure, temperature, instantaneous flow rate, type, and source of the proposed media water. Be sure the site parameters are within or will be within specifications before installation.				
15. Access control	Review site access and security procedures with the customer's site engineering personnel. Be sure sufficient access is available to HP's installation team.				
16. Recommendations	Following the HP installation site visit, analyze the data that is collected and prepare a report of findings. HP must identify potential obstacles to installation and make recommendations for any additional testing or changes to the installation plan.				

Customer responsibilities

Item	Description	Initial
1. Point of contact information	Provide HP with the name and telephone number of the designated point of contact for the purposes of this service.	
2. Service listing information	Provide all information that is required under this service listing or reasonably determined by HP to be necessary to deliver the service, including but without limitation, any documentation (internal or external) regarding prior plans or investigations used to identify the proposed installation site.	
3. Timely response	Provide a timely response (such as, in a time period that does not adversely affect the HP scheduled performance of the service) to all requests for information by HP.	
4. Access to subject areas and support areas	Provide HP access to all subject areas and support areas, including the proposed installation site and the mechanical or electrical infrastructure provided to support the HP POD 240e NA.	
5. Badge access	Provide HP badge access or an escort for the duration of the site visit to facilitate required access to all necessary areas.	
6. Site engineering personnel	Be sure that your site engineering personnel are familiar with the proposed installation site. The personnel that are responsible for the maintenance and support of the existing infrastructure must be available to answer questions.	
7. Documentation	Provide HP with copies of all available mechanical and electrical system design documentation, including as-built drawings and electrical single-line drawings. As appropriate to the specific location, provide HP with campus maps, building drawings, floor plans, and other relevant prints to assist in the documentation and evaluation of the proposed installation site.	

Item	Description	Initial
8. Network infrastructure information	Provide HP information regarding the planned network infrastructure connection points and pathways.	
9. Permission for photographs	Grant HP permission to take photographs or supply photographs to HP for report illustration purposes.	
10. Project logistics	Arrange site-specific project logistics at the time of scheduling. Failure to provide necessary authorizations can limit the effectiveness of the service and can, at the discretion of HP, impact scheduling or result in the postponement of the service.	
11. Business visas	Provide assistance in instances where a temporary business visa is required for HP personnel to visit the site. This assistance typically takes the form of preparing a letter of invitation. In some cases, a formal request must be made by the local company for which the work is taking place, if applicable.	

Appendix B: Preparing for delivery

Pre-delivery tasks

Allow adequate time for planning, scheduling, obtaining permits, design approval, inspections, and so on.

Installation prerequisites

Before installing the HP POD 240e NA, verify that the following prerequisites are met:

- All components are delivered to the facility.
- The HP POD 240e NA and power distribution components are in the final location.
- Facility power, water, and drainage are at the final location.
- Provisions for properly grounding the HP POD 240e NA are made.
- Required clearances exist, including overhead.
- All trade personnel required for assembly are coordinated.

HP POD 240e NA site readiness checklist

Before installing the HP POD 240e NA, follow all steps listed in this guide, the site plan, and the following checklists.

Architectural/environmental considerations

Item	Description	Sign-off
1	Be sure that the following installation requirements are met and understood by the customer: <ul style="list-style-type: none">• POD load pads are in the proper location.• Upon installation, the POD structure must be leveled to $\leq 0.5^\circ$, which can be checked at that time with a surveyor's transit.• Shimming is only allowed at the load pads.• Place shims in increments across the load pads to be sure that there is sufficient load transfer.	
2	Verify that the installation pad is capable of supporting the total POD solutions weight.	
3	Verify that the HP POD 240e NA site has provisions for grounding or a grounding system.	
4	Verify that the site pad is physically marked with the locations of all HP POD 240e NA load pads.	
5	Verify that the HP POD 240e NA is not in the direct path of any external heat loads, such as generators or a building AHU.	
6	Verify that the installation starting point has been identified and marked. This is the location where the first HP POD 240e NA section is placed during installation.	

Item	Description	Sign-off
7	Verify the average local temperatures and be sure that adequate environment protection is provided. For example, verify that cold weather protection is provided, if necessary.	
8	Verify that site altitude is less than 3,048 meters (10,000 feet).	
9	When installing on an elevated surface: <ul style="list-style-type: none"> • Verify that the maximum height requirements for the circuit breaker actuator meet the local and national electric code requirements of 200 cm (79 inch) (NEC 240.24-a). • Verify that proper landings and catwalk are planned for electrical cabinet access. 	
10	Verify that the planning for the required egress includes routes for all HP POD 240e NA personnel doors, cargo doors, and service area doors, including landings, catwalk, and stairs.	
11	Verify that the local AHJ has been contacted, all applicable codes and site-specific location guidelines have been reviewed, and all required permits are obtained.	
12	Verify that the site location has clearances (" Dimensions and required clearances " on page 7) for HP POD 240e NA installation, including any permanent structures, such as fences, walls, vestibules, and buildings.	
13	Verify that all utilities, overhead and underground, are identified to maintain required clearance.	
14	Verify that there is adequate clearance around the HP POD 240e NA for door operation, installation, and maintenance equipment.	
15	Verify that the site location and site pads are marked for POD-related infrastructure.	
16	Verify that a truck and equipment staging area has been identified. Verify planning for trucks for the HP POD 240e NA and other equipment.	
17	Verify that locations are available and identified for all equipment that is required.	
18	Verify the locations for crane off-loading and operation during HP POD 240e NA installation.	
19	Verify that the location for the storage area and the disposal of packaging materials and trash are identified.	
20	Verify that safety equipment is planned for and in place.	
21	Verify the customer's interfaces of the HP POD 240e NA fire alarm, security system, and communications systems to site system. The customer is responsible for all connections.	
22	Verify that existing contaminated or hazardous materials and work related to them are disposed of properly.	
23	Verify that there is an available temporary or permanent load bank, if required.	
24	Verify that tie-downs and other AHJ-required facilities for HP POD 240e NA and power containers are completed at least one week prior to the arrival of HP-provided equipment.	

Water supply

Item	Description	Sign-off
1	Verify that the HP POD 240e NA is not in a drainage path or flood prone area to prevent water from entering the HP POD 240e NA. HP recommends setting the HP POD 240e NA on a raised site pad.	
2	Verify that the water quality meets drinking water standards.	

Adiabatic media water supply

Item	Description	Sign-off
1	Verify that the water pressure is between 20-70 psi (138-483 kPa) and that water temperature is between 1°C to 30°C (34°F to 86°F).	
2	Verify that the water instant flow-rate is no lower than the rated flow of the fill solenoid valve (1.5 gpm maximum flow per adiabatic unit, maximum instantaneous.)	
3	Verify that water hardness is no greater than 40degFH or equal to 400 ppm of CaCO3.	
4	Verify that demineralized water (preferred) or drinking (potable) water is used.	

Power requirements

Item	Description	Sign-off
1	Verify that the following requirements are complete: <ul style="list-style-type: none"> • Short circuit analysis • Arc flash study • Circuit breaker coordination studies 	
2	Verify that the power installation work is completed according to the approved conduit routing drawings that show the exact routes, plan view, sections, and elevations.	
3	Verify that temporary site power for installation and construction is planned and available.	
4	Verify adequate site power (on page 13) per HP POD 240e NA requirements.	

General

Item	Description	Sign-off
1	Verify the utility connection including the main utility transformers and metering equipment.	
2	Verify the third-party commissioning services that might be required by the owner.	
3	Verify that the HP Project Team activities are coordinated with other site construction activities.	

Contacting HP

Before you contact HP

Be sure to have the following information available before you call HP:

- Active Health System log (HP ProLiant Gen8 or later products)
Download and have available an Active Health System log for 3 days before the failure was detected. For more information, see the *HP iLO 4 User Guide* or *HP Intelligent Provisioning User Guide* on the HP website (<http://www.hp.com/go/ilo/docs>).
- Onboard Administrator SHOW ALL report (for HP BladeSystem products only)
For more information on obtaining the Onboard Administrator SHOW ALL report, see the HP website (<http://www.hp.com/go/OAlog>).
- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Product identification number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP contact information

For United States and worldwide contact information, see the Contact HP website (<http://www.hp.com/go/assistance>).

In the United States:

- To contact HP by phone, call 1-800-334-5144. For continuous quality improvement, calls may be recorded or monitored.
- If you have purchased a Care Pack (service upgrade), see the Support & Drivers website (<http://www8.hp.com/us/en/support-drivers.html>). If the problem cannot be resolved at the website, call 1-800-633-3600. For more information about Care Packs, see the HP website (<http://pro-aq-sama.houston.hp.com/services/cache/10950-0-0-225-121.html>).

Regulatory compliance notices

HP POD 240e NA regulatory compliance

The HP POD 240e NA complies with the following regulatory standards.

Standard	Certification level	Standard title
UL 60950	ETL "Listed"	<ul style="list-style-type: none">UL 60950—<i>Standard for Safety Information Technology Equipment, Part 1: General Requirements</i>, Issue: 2007/03/27, Edition: 2UL 60950—<i>Standard for Safety Information Technology Equipment, Part 22: Equipment to be Installed Outdoors</i>, Issue: 2007/04/23, Edition: 1
NFPA 70	ETL "Classified"	NFPA 70— <i>National Electric Code, 2008 Edition</i> , © 2008 National Fire Protection Association
NFPA 72	Designed to Comply With	<i>National Fire Alarm code, 2007 Edition</i> , © 2006 National Fire Protection Association
NFPA 2001	Designed to Comply With	<i>NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems, 2008 Edition</i> , © 2008 National Fire Protection Association
IBC 2009	Designed to Comply With	<i>2009 International Building Code</i> , © 2010 International Code Council, Inc.

Safety and NEC compliance

The HP POD 240e NA is Listed to UL 69050 Part 1 and Part 22 as an Information Technology Product and Classified in accordance with the National Electric Code NFPA 70.

The HP POD 240e NA is not habitable or suitable for human occupancy. The HP POD 240e NA is Listed as a Product that provides Service Access Areas for periodic maintenance and service. Access to these areas must be controlled and available for use only by owner-authorized and qualified personnel who are trained in the maintenance and service of the HP POD 240e NA components. For more information, see "HP POD 240e NA regulatory compliance (on page 32)."



IMPORTANT: Before installing the HP POD 240e NA, consult your local AHJ for applicable regulations and to review site-specific location guidelines. If needed, obtain any necessary permits.

Additional considerations for safety and NEC compliance are as follows:

- The HP POD 240e NA is Listed as an Information Technology Equipment Product to UL 60950.
- The HP POD 240e NA is evaluated as a "non-inhabitable product" that provides "service access" areas for customer-authorized, qualified, and trained service personnel.
- The electrical connections of the HP POD 240e NA are evaluated as feeder connections for connection to an existing facility. The electrical connections are not suitable as "service entrance" for connection to the utility.

- The HP POD 240e NA is designed for stationary installation outdoors in a Pollution Degree 3 environment, in restricted access locations, and with field wiring terminals provided for permanent supply connections.
- The HP POD 240e NA meets the ratings in the following table.

Feature	Specification
Category	Rated Overvoltage Category III
Protection	Surge protection device
Class	Class I
Ambient temperature	2°C to 54°C (35.6°F to 129.2°F)
Relative humidity	0% to 100% humidity
Enclosure	NEMA 3R

- As part of the overall certification, relevant sections of the International Building Code have been applied as part of the design and evaluation. The current design supports wind loads up to 90 mph.

Safety and regulatory compliance

For safety, environmental, and regulatory information, see *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, available at the HP website (<http://www.hp.com/support/Safety-Compliance-EnterpriseProducts>).

Turkey RoHS material content declaration

Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

Ukraine RoHS material content declaration

Обладнання відповідає вимогам Технічного регламенту щодо обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні, затвердженого постановою Кабінету Міністрів України від 3 грудня 2008 № 1057

Warranty information

HP ProLiant and X86 Servers and Options (<http://www.hp.com/support/ProLiantServers-Warranties>)

HP Enterprise Servers (<http://www.hp.com/support/EnterpriseServers-Warranties>)

HP Storage Products (<http://www.hp.com/support/Storage-Warranties>)

HP Networking Products (<http://www.hp.com/support/Networking-Warranties>)

Glossary

AHJ

authority having jurisdiction

AHU

air handler unit

APJ

Asia Pacific Japan

BMS

building management system

door

A hinged portion of an enclosure that covers an opening.

ECS

environmental control system

EMEA

Europe, Middle East, and Africa

EPO

emergency power off

equipment

A general term, including fittings, devices, appliances, luminaries, apparatus, machinery, and the like used as a part of, or in connection with, a modular data center (Source: NEC).

HVAC

heating, ventilation, and air conditioning

IEC

International Electrotechnical Commission

labeled

Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

listed

Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards potential of not more than 42.4 V (DC or peak) supplied by a primary battery or by an isolated secondary circuit, and where the current capacity is limited by an overcurrent device, such as a fuse, or by the inherent capacity of the secondary transformer or power supply, or a combination of a secondary winding and an impedance. A circuit derived from a line-voltage circuit by connecting a resistance in series with the supply circuit to limit the voltage and current is not identified as a low-voltage limited energy circuit. or has been tested and found suitable for a specified purpose.

The means for identifying listed equipment might vary for each organization concerned with product evaluation, some of which do not recognize equipment as listed unless it is also labeled. Use of the system employed by the listing organization allows the authority having jurisdiction to identify a listed product.

MEP

mechanical, electrical, and plumbing

NA

North American

overcurrent protection

A device designed to open a circuit when the current through it exceeds a predetermined value. The ampere rating of the device is selected for a circuit to terminate a condition where the current exceeds the rating of conductors and equipment due to overloads, short circuits and faults to ground.

PPE

personal protective equipment

SOW

statement of work

structure

Enclosure of sufficient size to enable entry of personnel.

UL

Underwriters Laboratory

UPS

uninterruptible power system

VESDA

very early smoke detection apparatus

Documentation feedback

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Index

A

areas prone to lightning or power surges 21
assembly area 23

B

before you contact HP 31
BSMI notice 33

C

capacities 6
cold aisle clearance 10
cold weather considerations 21
connection portals 16
contacting HP 31

D

demarcation box 18
dimensions 7
drain location 13

E

electrical 13
environmental considerations 21
environmental control system (ECS) 16
environmental risks 21

F

facility connections 16
fire and safety 19
fire box 18
fire detection 6
future expansions 9

G

grounding requirements 10

H

HP contact information 31
HP site preparation drawing package 22

J

Japanese notice 33

L

Locations for the HP POD 240e NA and
equipment 23

M

modifications, FCC notice 33

O

Other structures 24
overview 5

P

power 13
pre-delivery 28
preparing for assembly 28
project coordination 22

R

regulatory compliance identification numbers 33
regulatory compliance notices 32, 33
regulatory compliance, HP POD 240e NA 32

S

safety and NEC compliance 5
safety considerations 33
safety information 33
seismic activity 21
site assessment 22, 25
site planning considerations 23
site preparation 6
site readiness checklist 28
site requirements 7, 22
site safety and security 6
supported facility connections 16

T

Turkey RoHS material content declaration 33

U

Ukraine RoHS material content declaration 33

utilities 12

utilities, requirements 12

utilities, system 12

W

warranty 33

water supply 12

weight requirements 7

Z

zoning and permit requirements 22